

Application Serial No: 10/637, 081  
In reply to Office Action of 22 August 2006

Attorney Docket No. 79790

AMENDMENTS TO THE CLAIMS

1. (currently amended): A system for storing a solid catholyte that is dissolved in a water solution to create hydrogen peroxide through hydrolysis for use in a semi fuel electrochemical cells used for undersea vehicle propulsion, comprising:

a solid medium including catholyte particles suspended within a matrix of encapsulating species, said solid medium having a controlled surface; and

a ~~hydrolyzing~~ liquid water solution circulating across said controlled surface;

wherein said catholyte particles and said encapsulating species are dissolved upon contact of said ~~hydrolyzing~~ liquid water solution with said controlled surface, resulting in hydrolysis and the products of hydrolysis include hydrogen peroxide.

2. (original): A system according to claim 1 wherein said catholyte particles are selected from the group consisting of oxides, peroxides, and superoxides of alkaline metals and said

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encapsulating species are selected from the group consisting of oxides, peroxides, and superoxides of alkaline metals and sodium hydroxide.

3. (original): A system according to claim 1 wherein said catholyte particles are sodium peroxide particles.

4. (original): A system according to claim 3 wherein the particle size of sodium peroxide ranges from 0.03" to 0.12".

5. (original): A system according to claim 3 wherein the amount of sodium peroxide in said solid medium is about 65-75% by weight.

6. (original): A system according to claim 1 wherein said catholyte particles are sodium peroxide particles and said encapsulating species are selected from the group consisting of potassium superoxide and sodium hydroxide, and wherein the particle size of sodium peroxide ranges from 0.03" to 0.12", and the amount of sodium peroxide in said solid medium is about 65-75% by weight.

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7. (currently amended): A system according to claim 2 further comprising a means for recirculating and cooling of said ~~hydrolyzing~~ liquid water solution.

8. (original): A system according to claim 7 further comprising a means for introducing seawater to said recirculating means.

9. (withdrawn): A method of making a catholyte solution, comprising the steps of:

fabricating a solid medium, wherein catholyte particles are suspended within a matrix of encapsulating species, and wherein said solid medium has a controlled surface;

dissolution of said solid medium, in a hydrolyzing liquid circulating across said controlled surface of said solid medium, wherein said catholyte particles and said encapsulating species are dissolved and the products of hydrolysis include hydrogen peroxide;

drawing off the necessary amount of said hydrolyzing liquid for use;

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recirculating and cooling the remaining liquid; and

introducing seawater to the remaining liquid to make up for  
the part of the liquid that was drawn off.

10. (withdrawn): A method according to claim 9 wherein said catholyte particles are selected from the group consisting of oxides, peroxides, and superoxides of alkaline metals and said encapsulating species are selected from the group consisting of oxides, peroxides, and superoxides of alkaline metals and sodium hydroxide.

11. (withdrawn): A method according to claim 9 wherein said catholyte particles are sodium peroxide particles.

12. (withdrawn): A method according to claim 11 wherein the particle size of sodium peroxide ranges from 0.03" to 0.12".

13. (withdrawn): A method according to claim 11 wherein the amount of sodium peroxide in said solid medium is about 65-75% by weight.

14. (withdrawn): A method according to claim 9 wherein said catholyte particles are sodium peroxide particles and said

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encapsulating species are selected from the group consisting of potassium superoxide and sodium hydroxide, and wherein the particle size of sodium peroxide ranges from 0.03" to 0.12", and the amount of sodium peroxide in said solid medium is about 65-75% by weight.

15. (original): A solid medium, comprising:

a matrix of encapsulating species;

catholyte particles suspended within said matrix of encapsulating species; and

a controlled surface;

wherein upon hydrolysis said matrix of encapsulating species and said catholyte particles dissolve from said controlled surface and the products of hydrolysis include hydrogen peroxide.

16. (original): A solid medium according to claim 15 wherein said catholyte particles are selected from the group consisting of oxides, peroxides, and superoxides of alkaline metals and said encapsulating species are selected from the group

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consisting of oxides, peroxides, and superoxides of alkaline metals and sodium hydroxide.

17. (original): A solid medium according to claim 1, wherein said solid catholyte particles are sodium peroxide particles.

18. (original): A solid medium according to claim 17 wherein the particle size of sodium peroxide ranges from 0.03" to 0.12".

19. (original): A solid medium according to claim 17 wherein the amount of sodium peroxide is about 65-75% by weight.

20. (original): A solid medium according to claim 15 wherein said catholyte particles are sodium peroxide particles and said encapsulating species are selected from the group consisting of potassium superoxide and sodium hydroxide, and wherein the particle size of sodium peroxide ranges from 0.03" to 0.12", and the amount of sodium peroxide in said solid medium is about 65-75% by weight.